

CLAIMS

What is claimed is:

- 1 1. A method, comprising:
  - 2 determining a shelf address and/or a slot address of a board installed in a
  - 3 card modular platform; and
  - 4 automatically assigning a static network address for at least one network port
  - 5 on the board based on the shelf address and/or the slot address.
- 1 2. The method of claim 1, wherein the static network address comprises an
- 2 Internet Protocol (IP) address.
- 1 3. The method of claim 1, wherein the network address is automatically
- 2 assigned by performing an algorithm that generates a unique address in response to
- 3 providing the shelf and/or slot addresses as inputs to the algorithm.
- 1 4. The method of claim 3, further comprising executing instructions stored on the
- 2 board to perform the algorithm.
- 1 5. The method of claim 1, wherein the board is a PICMG (PCI (peripheral
- 2 component interface) Industrial Computers Manufacturing Group)-compliant board,
- 3 and the shelf and the slot addresses are respectively obtained by issuing
- 4 GetAddressInfo and GetShelfAddressInfo IPMI (Intelligent Platform Management
- 5 Interface) commands.

1       6.     The method of claim 1, wherein the board is made by an original equipment  
2 manufacturer (OEM) and configured in accordance with the CompactPCI standard,  
3 and the shelf and the slot addresses are obtained by employing OEM-specific IPMI  
4 (Intelligent Platform Management Interface) commands.

1       7.     The method of claim 1, wherein the network address is automatically  
2 assigned by performing a query on a lookup table containing a unique network  
3 address for each shelf address and slot address combination to obtain the static  
4 network address.

1       8.     The method of claim 7, wherein the network address is automatically  
2 assigned by performing operations including:  
3               configuring an address proxy server with an address lookup table containing  
4 a unique network address for each shelf address and slot address combination;  
5               sending the shelf and slot addresses from the board to the address proxy  
6 server;  
7               querying the address lookup table based on the shelf and slot addresses to  
8 retrieve a corresponding network address; and  
9               returning the network address to the board.

1       9.     The method of claim 7, further comprising storing the lookup table on the  
2 board.

1       10.    A method comprising:  
2               obtaining, for a network port on a board installed in a card module platform, a  
3 temporary IP (Internet Protocol) address from a DHCP (Dynamic Host Configuration  
4 Protocol) server;

5           determining a shelf address and a slot address of the board installed in the  
6   card module platform;  
7           sending the shelf and slot addresses to a boot server;  
8           receiving a bootable image along with an IP address from the boot server;  
9           executing the bootable image; and  
10          setting a static IP address for the board in accordance with the IP address  
11         that was received from the boot server.

1   11.   The method of claim 10, wherein the boot server comprises a PXE (pre-boot  
2   execution environment) server.

1   12.   The method of claim 10, further comprising:  
2           executing firmware on the board to initialize a network interface; and  
3           performing a DHCP message exchange via the network interface to obtain  
4         the temporary address.

1   13.   The method of claim 10, further comprising returning an IP address for the  
2   boot server in addition to the temporary IP address.

1   14.   The method of claim 10, further comprising:  
2           receiving an initial boot image from the boot server;  
3           executing instructions in the initial boot image to obtain the shelf and slot  
4         addresses;  
5           receiving a final boot image;  
6           executing and/or loading the final boot image; and  
7           assigning the static IP address via the final boot image.

- 1    15. The method of claim 15, further comprising:
  - 2                configuring the boot server an IP address lookup table containing a unique
  - 3                network address for respective shelf address and slot address combinations;
  - 4                querying the IP address lookup table based on the shelf and slot addresses to
  - 5                retrieve the IP address to be assigned as the static IP address.
  
- 1    16. The method of claim 10, wherein data exchanged between the board and the  
2                boot server is sent via the Trivial File Transfer Protocol (TFTP).
  
- 1    17. The method of claim 10, further comprising co-locating the DHCP server and  
2                the boot server on the same machine.
  
- 1    18. A card modular platform board, comprising:
  - 2                a printed circuit board (PCB) on which a plurality of components are
  - 3                operatively coupled and linked in communication via circuitry on the PCB, including,
    - 4                a processor;
    - 5                memory;
    - 6                at least one backplane connector, configured to couple to a backplane
    - 7                installed in a card modular platform shelf having a plurality of slots;
    - 8                a network interface coupled to a network port; and
    - 9                at least one of a non-volatile storage device and a mass storage
    - 10              device; and
  - 11              machine executable instructions stored in said at least one of a non-volatile
  - 12              storage device and a mass storage device, which when executed by the processor
  - 13              perform operations in response to insertion of the board into a slot, comprising:
  - 14              determining an address for the shelf and the slot; and

15                   automatically assigning a static network address for the network port  
16                   based on the shelf address and the slot address.

1     19.   The card modular platform board of claim 18, wherein the machine  
2       instructions comprise firmware instructions stored in a non-volatile memory.

1     20.   The card modular platform board of claim 18, wherein execution of the  
2       machine instructions automatically assigns the network address by performing an  
3       algorithm that generates a unique address in response to providing the shelf and slot  
4       addresses as inputs to the algorithm.

1     21.   The card modular platform board of claim 18, further comprising data stored  
2       in said at least one of a non-volatile storage device and a mass storage device  
3       comprising a lookup table containing a unique network address for respective shelf  
4       address and slot address combinations, and wherein execution of the machine  
5       obtains the static network address by performing a query on a lookup table using the  
6       shelf and slot addresses that are determined as inputs.

1     22.   A card modular platform board, comprising:  
2                   a printed circuit board (PCB) on which a plurality of components are  
3       operatively coupled and linked in communication via circuitry on the PCB, including,  
4                   a processor;  
5                   memory;  
6                   at least one backplane connector, configured to couple to a backplane  
7       installed in a card modular platform shelf having a plurality of slots;  
8                   a network interface coupled to a network port; and

9                         at least one of a non-volatile storage device and a mass storage  
10                         device; and  
11                         machine executable instructions stored in said at least one of a non-volatile  
12                         storage device and a mass storage device, which when executed by the processor  
13                         perform operations in response to insertion of the board into a slot, comprising:  
14                         initializing the network interface;  
15                         performing client-side operations in a DHCP (Dynamic Host  
16                         Configuration Protocol) message exchange to obtain a temporary IP (Internet  
17                         Protocol) address from a DHCP server;  
18                         determining an address for the shelf and the slot;  
19                         sending the shelf and slot addresses to a boot server;  
20                         receiving a bootable image along with an IP address from the boot  
21                         server;  
22                         booting the bootable image,  
23                         wherein the IP address that was received from the boot server is assigned by  
24                         the bootable image as a static IP address for the network port.

1     23.   The card modular platform board of claim 22, wherein execution of the  
2     machine instructions performs further operations, including:  
3                         receiving an initial boot image from the boot server; and  
4                         executing instructions in the initial boot image to obtain the shelf and slot  
5     addresses;  
6                         receiving a final boot image; and  
7                         booting the final boot image,  
8                         wherein the static IP address is assigned by the final boot image.

1       24. A machine-readable medium to provide instructions, which when executed by  
2 a card modular platform board performs operations in response to insertion of the  
3 board into a slot of a card modular platform shelf, including:  
4             determining an address for the shelf and the slot; and  
5             automatically assigning a static network address for the network port based  
6 on the shelf address and the slot address.

1       25. The machine-readable medium of claim 24, wherein execution of the machine  
2 instructions automatically assigns the network address by performing an algorithm  
3 that generates a unique address in response to providing the shelf and slot  
4 addresses as inputs to the algorithm.

1       26. The machine-readable medium of claim 24, further including data comprising  
2 a lookup table containing a unique network address for respective shelf address and  
3 slot address combinations, and wherein execution of the instructions obtains the  
4 static network address by performing a query on a lookup table using the shelf and  
5 slot addresses that are determined as inputs.

1       27. The machine-readable medium of claim 24, wherein the medium comprises a  
2 firmware storage device, and the instructions comprise firmware.

1       28. The machine-readable medium of claim 24, wherein the card modular  
2 platform board is a PICMG (PCI Industrial Computers Manufacturing Group)-  
3 compliant board, and the shelf and the slot addresses are respectively obtained by  
4 issuing *GetAddressInfo* and *GetShelfAddressInfo* IPMI (Intelligent Platform  
5 Management Interface) commands via execution of the instructions.